



**Contract Laboratory Program
Guidance for Field Samplers**

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Foreword

The intent of the *Contract Laboratory Program Guidance for Field Samplers* is to replace the *CLP Samplers Guide*. This guidance document is designed to provide users with general information regarding environmental sample collection for the United States Environmental Protection Agency's (USEPA's) CLP. This document provides minimum CLP requirements, an explanation of the general sampling process sequence of events, and any related information. The appendices contain useful reference information and checklists to aid in planning and documenting sampling activities.

CLP users also are encouraged to review the *Introduction to the Contract Laboratory Program* document that contains a general overview of the CLP, how it works, and how to access the program. The CLP requires samplers to use the functionality provided by the Field Operations Records Management System (FORMS) II Lite™ FORMS II Lite software, which is the preferred means of creating both required and supplemental CLP documentation. For guidance in using the software to record and submit sampling data, users should reference the *FORMS II Lite User's Guide*.

The *Contract Laboratory Program Guidance for Field Samplers* can be downloaded from the CLP Web site at the following address:

<http://www.epa.gov/superfund/programs/clp/guidance.htm>

The *FORMS II Lite User's Guide* can be downloaded from the CLP Web site at the following address:

<http://dyncsdao1.dyncorp.com/itg/forms2lite/documents/51docs/UserGuide51.pdf>

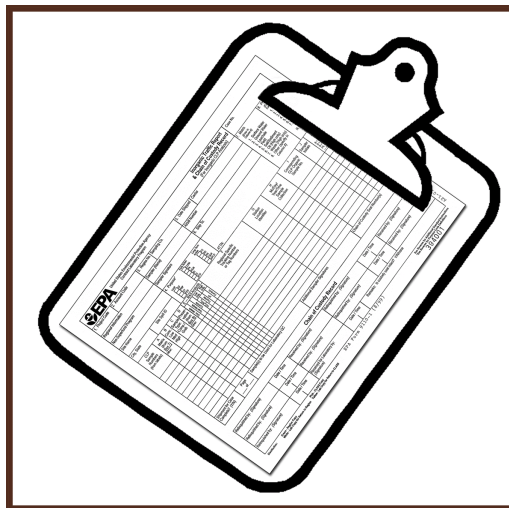


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List of Acronyms

AOC	Analytical Operations/Data Quality Center
BNA	Base Neutral Acid
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CLP	Contract Laboratory Program
CLP PO	Regional CLP Project Officer
CVAA	Cold Vapor Atomic Absorption
DOT	Department of Transportation
DQO	Data Quality Objective
FORMS II Lite™	Field Operations Records Management System II Lite
FSP	Field Sampling Plan
GFAA	Graphite Furnace Atomic Absorption
IATA	International Air Transport Association
ICP-AES	Inductively Coupled Plasma - Atomic Emission Spectroscopy
ICP-MS	Inductively Coupled Plasma - Mass Spectrometry
MS	Matrix Spike
MSD	Matrix Spike Duplicate
OERR	Office of Emergency and Remedial Response
OSC	On-Scene or On-Site Coordinator
OSWER	Office of Solid Waste and Emergency Response
PCBs	Polychlorinated Biphenyls
PE	Performance Evaluation
PM	Program Manager
ppb	Parts-Per-Billion
ppt	Parts-Per-Trillion
PRP	Potentially Responsible Party
PTFE	Polytetrafluoroethylene
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QASPER	Quality Assurance Sampling Plan for Environmental Response
QATS	Quality Assurance Technical Support
QC	Quality Control
RAS	Routine Analytical Services
RPM	Remedial Project Manager
RSCC	Regional Sample Control Center
RSM	Regional Site Manager
SAM	Site Assessment Manager
SAP	Sampling Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SDG	Sample Delivery Group
SMC	System Monitoring Compound
SMO	Sample Management Office
SOP	Standard Operating Procedure
SOW	Statement of Work
SVOA	Semi-Volatile Organic Analysis
TR/COC	Traffic Report/Chain of Custody Record
USEPA	United States Environmental Protection Agency
VOA	Volatile Organic Analysis

1.0 INTRODUCTION

1.1 About this Guide

This document is intended to guide those who plan and conduct environmental sample collection projects for analysis through the Superfund's Contract Laboratory Program (CLP). This chapter describes the structure and purpose of this document. Chapter 2, *Pre-field Activities*, addresses pre-field planning activities that the sampling team could complete prior to the actual sampling event. Chapter 3, *In-field Activities*, addresses those activities that need to be completed during the sampling event.

Chapters 2 and 3 contain checklists to help the sampler ensure that all necessary steps are completed. Comprehensive checklists for each task are included in Appendix E.

Note: A project and site-specific Quality Assurance Project Plan (QAPP) will override guidance given within this document.

1.2 Overview of the Contract Laboratory Program

The CLP is a national program of commercial Laboratories under contract to support the United States Environmental Protection Agency's (USEPA's) nationwide effort to clean up designated hazardous waste sites by supporting the USEPA's Superfund program. The Superfund program was originally established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 and presently exists under the Superfund Amendments and Reauthorization Act (SARA) of 1986.

The CLP provides users with analytical services using state-of-the-art technology. The program provides data of known and documented quality to support USEPA enforcement activities or other user needs. To achieve this goal, the CLP has established strict Quality Control (QC) procedures and detailed documentation requirements. Current CLP users include the USEPA Regions, States and tribal governments, and other Federal agencies.

1.2.1 Key Players Within the CLP

In coordinating Superfund sampling efforts, the Analytical Operations/Data Quality Center (AOC) is supported by the Sample Management Office (SMO) contractor, the Regional CLP Project Officers (CLP POs), the Regional Sample Control Center (RSCC) Coordinators, and the Regional Site Managers (RSMs), including Site Assessment Managers (SAMs), On-Scene/On-Site Coordinators (OSCs), and Remedial Project Managers (RPMs). Samplers may work directly with the RSCC Coordinator and/or RSM (or equivalent), and/or an OSC from the field support section during a sampling event. See Table 1-1 for a brief description of the functions performed by key participants (functions may vary by Region).

Table 1-1. Participants in the CLP

Participants in the CLP Program	Responsibilities
Analytical Operations/Data Quality Center (AOC)	<p>USEPA AOC directs the CLP from within the Office of Emergency and Remedial Response (OERR) in the Office of Solid Waste and Emergency Response (OSWER). AOC responsibilities include:</p> <ul style="list-style-type: none"> • Development of analytical methods; • Development of the Statements of Work (SOWs) that define required analytical methods, QC, detection/quantitation limits, and holding times for the analytical services procured under the CLP; • Development and implementation of policies and budgets for Superfund analytical operations; • Development of information management policies and products for analytical data; • Management of CLP SMO and Quality Assurance Technical Support (QATS) contracts; • National administration, evaluation, and management of the CLP; and • Direction of CLP Quality Assurance (QA) activities in coordination with overall OSWER QA activities. <p>To obtain the most current AOC contact list, refer to the following Web site: http://www.epa.gov/superfund/programs/clp/contact.htm#AOC</p>
CLP Sample Management Office (SMO)	<p>Provides necessary management, operations, and administrative support to the CLP. The SMO contractor receives Regional analytical requests, coordinates and schedules sample analyses, and tracks sample shipments and analyses. The SMO contractor also receives and checks data for completeness and compliance, processes Laboratory invoices, and maintains a repository of sampling records and program data.</p>
Regional CLP Project Officer (CLP PO)	<p>Monitors the technical performance of the contract Laboratories in each Region. The CLP PO works closely with AOC Program Managers (PMs) to identify and resolve Laboratory technical issues, and leads Laboratory on-site evaluations. The CLP PO (or their designee) is the sole Regional official who contacts the CLP Laboratories. To obtain the most current CLP PO contact list, refer to the following Web site: http://www.epa.gov/superfund/programs/clp/contact.htm#po</p>
Regional Sample Control Center (RSCC) Coordinator	<p>In most Regions, the RSCC Coordinator coordinates sampling efforts and serves as the central point-of-contact for sampling questions and problems. The RSCC Coordinator works with SMO to schedule sample shipments to Laboratories. In addition, the RSCC Coordinator's activities may include: providing monthly projections; and informing SMO of sample shipment, cancellations, special instructions, and sampling issues. To obtain the most current RSCC Coordinator contact list, refer to the following Web site: http://www.epa.gov/superfund/programs/clp/contact.htm#rsc</p>
Regional Site Manager (RSM)	<p>Coordinates the development of acceptance or performance criteria and oversees project-specific contractors, state officials, or private parties conducting site sampling efforts. The RSM could be the Site Assessment Manager (SAM), the On-Scene/On-Site Coordinator (OSC), or the Remedial Project Manager (RPM).</p>
Field Support Section	<p>The Field Support Section consists of personnel such as the OSC, SAM, and RPM. In most Regions, the Field Support Section develops Standard Operating Procedures (SOPs) for field sampling and related procedures, and assists sampling teams in following those SOPs. The sampling team determines what type(s) of CLP services will be required or a particular sampling event. The Field Support Section reviews Sampling Analysis Plans (SAPs) prepared by sampling teams and oversees sampling teams in the field. They also prepare their own SAP, perform sampling activities in the field, and analyze and report the results of their sampling events to the RSM.</p>

1.3 Overview of the Sampling Process

Once USEPA has determined that physical, chemical, and biological testing of a site is necessary, samples of material from the investigated area must be collected. The type of material that must be collected and the analytical method to be used depends upon the physical location of the site, detection level(s), site history (previous sampling), and known vs. unknown conditions and contaminants. The sampling process includes carefully planned and consistently applied procedures that produce accurate and legally defensible data. The sampling team should consider the procedures and plans presented in this guide as minimum sampling process guidelines to maintain sample integrity and identity. Samples should be collected according to the approved project and site-specific QAPP and SAP. This document does not define specific sampling procedures for sampling because specific sampling protocols depend on individual site conditions, Regional requirements, and acceptance and performance criteria. Since Regions may have their own specific requirements for individual sampling programs, they are responsible for generating Region-specific sampling SOPs. For additional information, refer to Section 3.3.1, General Sampling Techniques.



At-a-Glance: Overview of the Sampling Process.

- ✓ Procedures must be consistent.
- ✓ Analytical data must be accurate and defensible.
- ✓ Sampling procedures and guidelines must meet minimum requirements.

1.3.1 Procedures Must be Consistent



The purpose of sampling is to collect representative portions from a suspected contaminated site. Sample collection is critical to determining the presence, type, concentration, and extent of environmental contamination by hazardous substances, thus it is a crucial part of every sampling and environmental testing effort. Sampling procedures must be consistently written and followed to mitigate risk of error and the expense of resampling.

Failure to follow proper sampling and shipping procedures could result in samples that are contaminated, broken, mislabeled, lost during shipping, or unusable because of a missed holding time. If procedures are inconsistently or improperly followed, any resultant analytical data may be inaccurate and may not be defensible in a court of law.

Note: If resampling is needed due to improper sampling, the sampling team may incur the cost.

1.3.2 Site Data Must be Accurate and Defensible

The data gathered during sampling activities helps to accurately characterize contaminated waste sites so that the impact on human health and the environment can be properly evaluated. Acquiring accurate and defensible data that will be accepted in a court of law is the CLP's primary objective; therefore, the sampler must collect samples according to strict sampling procedures, plans, and guidelines. USEPA and many other Federal agencies use data resulting from analytical testing of soil/sediment/aqueous samples to:

- Determine if a site is contaminated with organic and/or inorganic compounds;
- Identify pollution sources and Potentially Responsible Parties (PRPs);
- Validate remedial design methodologies;
- Assess response and remedial priorities;
- Assess risk to human health and the environment;
- Determine appropriate clean-up actions; and
- Determine clean-up achievements.

1.3.3 Sampling Procedures and Guidelines Must Meet Minimum Requirements



It is imperative that sampling personnel be aware of the minimum CLP and Regional requirements that directly impact and define how a sampling event will take place. It is important to note that the procedures and guidelines set forth in this document are considered minimum CLP requirements. Samplers should reference the following sections within this document that specifically address important requirements that must be met for a successful sampling event:

- Section 1.4.1 Primary Documentation Requirements;
- Section 2.4.1 Request Scheduling of Analysis, Case and Sample Numbers, and Laboratory Contact Information;
- Section 2.7 Comply with Transportation and Shipping Requirements;
- Section 2.8 Provide Shipment Notification;
- Section 3.1 Collecting Samples; and
- Section 3.2 Complete Required Documentation.

1.4 Overview of Sampling Documentation Requirements



The sampler must properly document samples collected for analysis to uniquely identify each sample and ensure adequate chain-of-custody procedures.

1.4.1 Primary Documentation Requirements

Sampling personnel must:

- 1) Record the CLP Sample Number on each sample bottle,
- 2) Complete the Traffic Report/Chain of Custody (TR/COC) Record using the Field Operations Records Management System Lite (FORMS II Lite) software, and
- 3) Complete and attach custody seals to meet primary CLP requirements.



At-a-Glance: Overview of Sampling Document Requirements.

- ✓ Must use FORMS II Lite to create sample documentation.
- ✓ Primary documentation requirements:
 - Sample Number
 - Traffic Report/Chain of Custody (TR/COC) Record
 - Custody Seals
- ✓ Secondary documentation requirements:
 - Sample Labels
 - Sample Tags
 - Field Operation Records

Please contact your RSCC Coordinator (see Table 1-1) for information on obtaining CLP Sample Numbers, TR/COC Records, and chain-of-custody seals for sampling events.

1.4.1.1 Sample Number

A Sample Number is a number that is unique per sample, per Statement of Work (SOW), that is used to identify and track a sample. These Sample Numbers are used to track samples throughout the sampling and analytical processes and are recorded on many types of sampling documentation (e.g., TR/COC Records and sample tags).

Some Regions require sampling personnel to use computer-generated, pre-printed Sample Numbers. Sampling personnel should verify with their RSCC Coordinator (or their designee) if pre-printed Sample Numbers are required. If pre-printed Sample Numbers are not provided by the RSCC Coordinator (or their designee), sampling personnel must correctly assign the Sample Numbers and transcribe them accurately onto the appropriate sample bottle or container. Samplers must contact their RSCC Coordinator to obtain an initial Sample Number with which to start. When using the FORMS II Lite software, do **not** set the default Sample Number to "0" (zero). Please refer to Section 3.2.1 for more detailed information regarding use of Sample Numbers.

Note: If the sampler has any questions regarding the assignment of Sample Numbers, they should contact their RSCC Coordinator.

1.4.1.2 Traffic Report/Chain of Custody (TR/COC) Record

The TR/COC Record is used as physical evidence of sample custody and functions as a permanent record of each sample collected. **Per CLP minimum documentation requirements, a separate TR/COC Record must accompany every cooler that is shipped by sampling personnel.**



In an effort to automate sample documentation in the field, AOC has developed a stand-alone, Windows-based software application that samplers can use to automatically create and generate sample documentation. The FORMS II Lite software allows users to enter information prior to and during sampling events. It allows users to multi-task and electronically create, edit, then print documentation associated with sampling activities. Users can customize data entry screens to view data throughout the entire documentation process. Users can also customize the format and content of sample labels based on specific requirements.

The program simplifies and accelerates the tedious manual sample documentation process by reducing the generation of handwritten documents by almost 70%. The FORMS II Lite software enables sampling personnel to easily:

- Generate Sample Numbers or manually assign their own unique, project-specific Sample Numbers;
- Create sample labels, sample tags, TR/COC Records, and Field Weight forms;
Note: Samplers can substitute a sample label for a sample tag when using the FORMS II Lite software. Samplers can create labels containing specific, designated information, and generate as many labels as necessary for placement on sample containers and sample tags.
- Track samples from the field to the Laboratory;
- Electronically capture sample information into databases; and
- Export electronic data to a Data Base File (.dbf) , Text (.txt), or eXtensible Markup Language (.xml) file.

AOC requires samplers to use the FORMS II Lite software for all CLP sampling efforts. For assistance with obtaining or using the FORMS II Lite software, please contact the FORMS II Lite Help Desk at 703-715-4474 from 9:00 AM - 5:00 PM Eastern Time (ET).

For additional information regarding FORMS II Lite use and training, please refer to the following Web site:

<http://www.epa.gov/superfund/programs/clp/f2lite.htm>

1.4.1.3 Chain-of-Custody Seals

A chain-of-custody seal is any adhesive label or tape that can be used to seal a sample bottle, container, or shipping cooler such that if it is opened or tampered with, the seal will be broken. Sampling personnel should refer to their project plans for Region-specific custody seal requirements.

Note: At a minimum, custody seals should be placed on each sample bottle or container.

1.4.2 Secondary Documentation Requirements



Samplers may also be required by a Region to use a sample label, sample tag, or field operations records documenting information such as daily activities, equipment and materials used, personnel involved, site security, etc. These types of documentation help ensure proper sample identification and provide additional chain-of-custody records.

The documentation required by a Region for a sampling event is outlined in project plans such as the QAPP, SAP, and Field Sampling Plan (FSP). Sample labels and tags may be provided to samplers by their RSCC Coordinator.

1.4.2.1 Sample Labels

A sample label is an identification label attached to a sample bottle or container that contains a sample. Sample labels are affixed to each sample container as samples are collected in the field. A sample label will contain, at a minimum, a Sample Number so that it can be associated with, and listed on, the associated TR/COC Record and chain-of-custody paperwork. It is also recommended that the required analysis be recorded on the label as well to eliminate confusion at the Laboratory. Sampling personnel should refer to their project plans for Region-specific sample label requirements.

1.4.2.2 Sample Tags

A sample tag identifies a sample bottle or container that contains a sample. The tag also provides specific analytical direction and proof that a sample existed. To support the use of sample data in potential enforcement actions, samples with other than *in situ* measurements (e.g., pH, temperature, conductivity) can be identified with a sample tag. A Sample Number will be recorded on a sample tag to indicate that the sample container comprises the whole sample in the case where there is just one container of sample, or part of the indicated sample in the case of multiple containers of sample. Sampling personnel should refer to their project plans for Region-specific sample tag requirements.

1.4.2.3 Field Operation Records

Sampling personnel should maintain complete, accurate, and legible field operations records as they perform a sampling activity. The following records are included: Field Logbooks; Corrective Action Reports; Sampling Trip Reports; supplemental standardized forms; logs; and records such as maps or photographs that document each step of the work performed in the field. Sampling personnel should refer to their project plans for Region-specific field operations record requirements. These records are very important tools because they are considered part of the official project file when legal issues arise.